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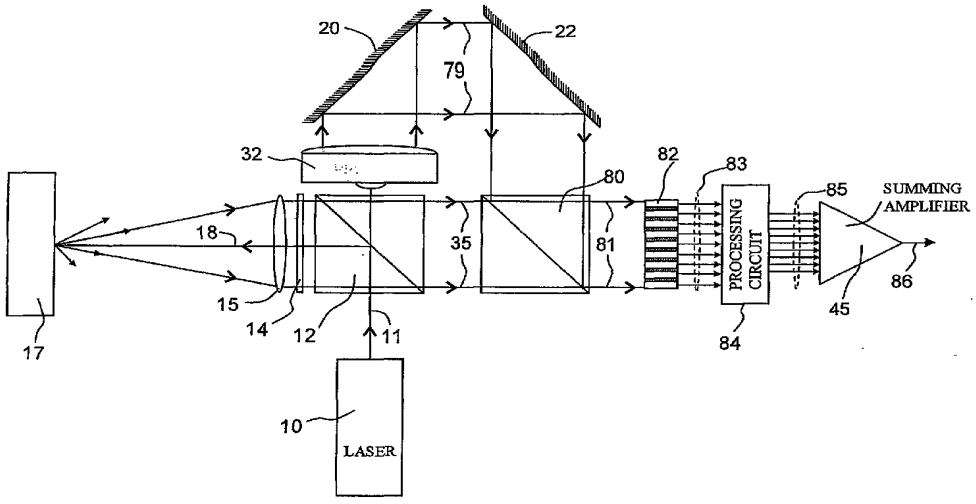
(54) Title: MULTI-CHANNEL LASER INTERFEROMETRIC METHOD AND APPARATUS FOR DETECTION OF ULTRASONIC MOTION FROM A SURFACE



(57) Abstract: A multi-channel laser interferometric method and apparatus are provided for optically measuring transient motion from a surface (17). A laser beam (11) is generated and then divided into first and second beams having respective intensities representing minor and major fraction of the predetermined laser intensity. The reference beam (18) illuminates the surface (17) at which deformation is expected. The light back-scattered by the surface is collected by a single aperture lens (15) and then made to interfere with the probe beam (67) which has been expanded (32), onto a two-dimensional array of detectors (71). Each signal (83) corresponding to each detector of the array is converted individually to an electrical signal, each electrical signal is amplified and processed (84), and the plurality of processed signals (85) is then averaged in an electrical summing means (45).

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